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ABSTRACT

The research objective of the study involving 240 low socioeconomic status mothers was validation of the prevailing multifactor theory of child abuse and neglect which states that maltreatment results from personality characteristics of parents, children "at risk" due to preexistent deviancy, and environmental stress. Ss were measured on 12 variables of theoretical importance. A multiple discriminant analysis distinguished the neglecting mothers from other groups at the .005 level, primarily as a result of stress related variables. Approximately 12% of the discriminant space was explained on the basis of stress and personality clusters from the Michigan Screening Profile of Parenting. Predicted classification of all Ss from the derived discriminant functioning was 48% correct or approximately 13% better than chance expectancy. It was concluded that the proposed model of causal antecedants implicated in child maltreatment has relevance but is of limited explanatory power when applied retrospectively. (Author/SBH)

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IDENTIFICATION AND DEFINITION OF FACTORS CAUSALLY ASSOCIATED WITH CHILD ABUSE AND NEGLECT

Final Report

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ABSTRACT

Numerous single factor theories have been advanced to explain the maltreatment of children by their parents. The research objective of the current study was validation of the prevailing multi-factor theory of child abuse and neglect which states that maltreatment results from 1) personality characteristics of parents; 2) children "at risk" due to pre-existent deviancy and 3) environmental stress.

Two-hundred forty low SES Brooklyn mothers from known abuse, neglect, and non-maltreatment control samples were measured on twelve variables of theoretical importance. A multiple discriminant analysis distinguished the neglecting mothers from the other groups at the .005 level, primarily as a result of stress-related variables. Approximately twelve percent of the discriminant space was explained on the basis of stress and personality clusters from the Michigan Screening Profile of Parenting (MSPP). Predicted classification of all subjects from the derived discriminant functions was 48% correct or approximately 13% better than chance expectancy.

It was concluded that the proposed model of causal antecedants implicated in child maltreatment has relevance but is of limited explanatory power when applied retrospectively. Improved instruments, sampling techniques, and prospective longitudinal approaches were suggested for subsequent investigations.

THEORETICAL RATIONALE AND REVIEW OF THE LITERATURE

Personality Characteristics of Abusing Parents

A multitude of personality characteristics has been attributed to abusing parents. Most of these descriptions have emerged from clinical practice, and to date there have been few scientifically rigorous studies. In addition, three levels of analysis are discernable in the clinical and quasi-experimental literature. On the gross level, researchers have sought to identify personality types or diagnostic categories prevalent among child abusers; while on a finer level, studies have focused on traits or needs. A third level of analysis has pertained to life history variables or predispositional factors antecedent to traits or significant psychopathology.

Controlled diagnostic studies of child abusers have been few and have typically employed self-administered personality inventories. Paulson (1974) and Griswold ( ) have both reported significant results with the MMPI, noting profile and individual scale differences. In Griswold's studies, female abusers were found to have extensive psychopathology with elevated scores on those scales which suggest psychosis. Paulson's research showed similar profiles for male abusers, while females obtained high scores on scale reflecting aggression and authority-related problems, rather than psychotic tendencies.

In a study of abusers and matched controls which utilized both interviews and psychological tests, Smith, et al (1973) found significantly more abnormal personality features and neuroses among abusive mothers while fathers showed both abnormal features and a high incidence of psychopathy. Thus, the few controlled nosological studies to date have found abusive parents of both sexes to demonstrate moderate to severe psychopathology, while the type of disorder is inconsistent from study to study and across sexes.

More penetrating impressions of the personalities and underlying psychopathology of abusing parents have been elicited during their psychiatric treatment and while interacting with their children. Steele (1970) described specific key psychodynamics contributing to the parental dysfunction encountered in child abuse. He stressed the importance of the parent's closely linked identifications with a harsh, rejecting mother and with a "bad" childhood self-image, which are perpetuated in the current relationship with the abused child. The abusive parents submit their children to traumatic experiences similar to those they had endured during childhood. Steele observed the use of such defense mechanisms as denial, projection, identification with the aggressor, and role reversal. The last, a maneuver by which the abusing parent turns toward the child for an inordinate amount of dependency gratification, has been noted by other investigators (Morris and Gould, 1963) as well. Galdston (1971) studied the parents of abused preschool children who attended a therapeutic day care center. He emphasized the importance of unresolved sexual guilt associated with the conception of the child who is subsequently abused. Feinstein, et al (1964) explored the behavior of women with infanticidal impulses in group therapy. These women displayed deep resentment toward their parents for failing to satisfy their dependency needs. They frequently demonstrated a hatred of men which could be traced to intense sibling rivalry with their brothers. Many of these women had witnessed or been subjected to excessive parental violence. They manifested phobic and depressive symptoms in addition to fears about harming their children.

Green (1974, 1976) conducted in-depth interviews with 60 mothers or female caretakers of children where a finding of abuse had been confirmed by a protective services investigation or the Family Court. Twelve of these families later participated in a pilot treatment program which included individual psychotherapy.

Key psychodynamic elements appeared to be role reversal, excessive use of denial and projection as defenses, rapidly shifting identifications, and displacement of aggression from extraneous sources onto the child.

In addition to these attempts to provide comprehensive psychodynamic formulations, numerous traits and needs have been ascribed to child abusers. Those who engage in child abuse have been described as impulsive (Elmer, 1965), immature (Cohen, Raphling & Green, 1966) rigid and domineering (Merrill, 1962), dependent (Melnick & Hurley, 1969), narcissistic (Young, 1964), chronically aggressive (Merrill, 1962), isolated from family and friends (Steele & Pollock, 1968; Smith, et al,1973), and experiencing marital difficulty (Kempe, Silverman, Steele, Droegemueller & Silver, 1962).

In a study comparing abusing, neglecting and normal control mothers which utilized the California Psychological Inventory, Griswold and Billingsley ( ) found the abusers to suffer from a relatively poor sense of well-being, poor self-control, and low needs for achievement via conformity or to make a good impression, while neglectors were impaired on scales reflecting socialization.

The relationship between socioeconomic factors and child abuse has also been a subject of controversy. Some observers (Johnson & Morse, 1968; Morris & Gould, 1963) have considered child abuse a syndrome indigenous to the poor, while others (Elmer, 1965; Helfer & Pollock, 1968) have cited its occurrence in the middle and upper classes. The latter suggest that child abuse is psychodynamically determined and independent of education, race and socioeconomic level. Some abused children appear to be physically neglected, while others seem to receive adequate material and physical care.

The greatest area of agreement in the field of child abuse has pertained to

the history and background of abusing parents themselves. These individuals have usually experienced abuse, deprivation, rejection and inadequate mothering during childhood, profoundly interfering with their ability to nurture their own offspring. The failure to achieve satisfaction of dependency needs during childhood in combination with the perception of a hostile and rejecting maternal image appears to many of far greater significance in the etiology of "abuse-pronenes than the various other personality traits and psychological symptoms often present in these individuals. An early controlled study (Melnick & Hurley, 1969) supports the notion that these mothers have themselves been victims of emotional deprivation, which is currently manifested by their frustrated dependency needs and an inability to cope with the demands of their offspring.

Based on this frame of reference, an exploratory study was undertaken at Downstate Medical Center in Brooklyn, New York with the cooperation of the Bureau of Child Welfare and Family Court. The study was the first to compare abusing parents with neglecting parents as well as normal parent controls. The samples were matched on S.E.S. and the age and sex of the target children, who served as subjects in additional studies (Green, Sandgrund, Gaines & Haberfeld, 1974; Sandgrund, et al, 1974).

The mothers of the abused sample most frequently reported their children to be problems at home and in school. They also were more likely to see themselves as having problems with their families and mates. In contrast, the mothers of the control group reported that their study children required less attention than their siblings. The mothers of the neglected children reported the highest percentage of unplanned pregnancies and the absence of a husband or male companion at home. The neglecting mothers also exhibited the highest incidence of alcoholism, psychosis, and chronic physical illness. In addition, significant differences

between the mothers of the abused children and the neglecting mothers were obtained for school behavior problems, child's self-destructive behavior, child requiring most attention, and current marital difficulty.

The manner in which the abused children were characteristically perceived by their mothers seems to be closely related to the way these women were regarded by their parents. The interview data confirmed some of the observations of previous investigators and provided a basis for understanding the psychology of child abuse. The mother's perception of the abused child as the most aggressive, difficult and demanding of her offspring made this child vulnerable to scapegoating. The rejection, criticism, and punishment experienced by these mothers at the hands of their own parents reinforced their feelings of having been burdensome children, and facilitated their identification with a hostile, rejecting parental figure. The emotional unavailability of the families and spouses of these women explined their turning toward their children for dependency gratification (role reversal).

The Child

There have been few well-controlled studies of the psychological characteristics of abused and/or neglected children. More significantly for this project, there have been no studies designed to assess the functioning of the child prior to the onset of abuse or neglect. This would represent an important independent variable in any context in which maltreatment ultimately ensues.

Several retrospective studies of abused children have found the incidence of premature births among them to be considerably higher than regional averages (Elmer & Gregg, 1967; Klein & Stern, 1971; Martin, et al, 1974), while others have reported the prevalence of unrecognized physical handicaps (Ounsted, et al,

1974) and congenital anomalies (Birrell & Birrell, 1968). Several possible interpretations have been suggested for these findings concerning the role of the child in the child abuse syndrome (Friedrich & Boriskin, 1976). The most direct causal inference is that abused children may be more difficult to manage and prone to scapegoating due to a pre-existing deviancy. Alternatively, prematurity or difficult infant temperaments may impede the establishment of maternal-infant bonding. Faranoff, et al (1972) found that mothers who later abuse or neglect their children visited their low birth weight infants less frequently than normal control mothers. Ounsted, et al (1974) observed high risk mother-infant dyads characterized by puerperal depression among the mothers and colicky, irritable children who cried excessively and experienced sleeping difficulties.

While the methodological problems inherent in the identification of pre-existing deviancy on the part of the child will be discussed in the appropriate section of this report, it would be worthwhile to review what ex post facto research has been done in this area. There is ample evidence to support the premise that abuse victims are psychologically impaired when evaluated after the onset of abuse; however, the cause and effect relationship remains unclear.

Recent efforts to document the psychological damage sustained by abused children have found them to suffer from a variety of cognitive and emotional ills. Elmer (1965) studied the effects of abuse by comparing abused and non-abused children who had all been hospitalized for multiple bone injuries. The abused group showed a higher incidence of mental retardation and speech difficulties. Martin (1972) reported a study in which one third of a sample of abused children was mentally retarded, 43% was neurologically damaged, and 38% exhibited delayed language development. In a three year study of children whose injuries were thought to be a consequence of abuse or neglect, Morse, Sahler and Friedman (1970) discovered mental deficiency among 70% of their sample.

An eight year follow-up study, however, which employed matched groups of abused and non-abused traumatized children (Elmer, 1977), found few significant differences in their physical or emotional development. Hypotheses that the abused children would show neurological and language impairment, disturbed self-concept, poor school achievement, inferior physical health, and behavioral difficulties were not supported. The abused children differed from their counterparts only in weight and in heightened aggression and impulsivity over a series of stories elicited from doll play.

Behavioral observations of abused children have found them to be stubborn, unresponsive, negativistic, chronically crying, and depressed (Johnson & Morse, 1968), fearful, apathetic, and unappealing with a blunting of their appetite for food and human contact (Galdston, 1965), and likely to provoke physical attack from others (Milowe & Lourie, 1964). Early painful stimulation has been shown to relate to subsequent self-mutilation in schizophrenic children (Green, 1968a, 1968b). The work of Sears (1961), who studied the relationship between punitive toilet training and preoccupation with self-punishment in adolescence, suggests that appreciable self-destructive activity might be found for non-psychotics as well who had been childhood victims of excessive physical punishment.

Psychological damage similar to that thought to result from child abuse has also been noted in research with neglected and deprived children (Bowlby, 1951; Marans & Lourie, 1967; Provence & Lipton, 1962; Prugh & Harlow, 1962; Spitz & Wolf, 1946). Impaired intellectual and language development, poor impulse control, and distorted object relationships have been attributed to inadeqaute maternal care and nurturance.

A study of 120 abused, neglected, and normal control children (matched for age, sex and S.E.S.) was undertaken at Downstate Medical Center. Factor analyses of ratings made by a psychiatrist and psychologist on the basis of interviews and tests identified two domains of functioning in which the abused and neglected children were damaged. These included mental status/defensive functioning and so-called conflict-free ego functioning, particularly I.Q. and a rating of probable organicity. The psychologist's rating of organicity was supported by blind ratings of the children made by a neurologist on the basis of a neurological exam and perceptual motor tests (Green, Sandgrund, Gaines & Haberfeld, 1974). Univariate analysis of variance confirmed significant ($p. < 05$) differences in verbal and performance I.Q. scores for abused, neglected and normal control children (Sandgrund, Gaines & Green, 1974). The data also revealed a disproportionate frequency of full-scale I.Q.'s below 70 among the abused and neglected children. Twenty-five percent of the abused sample was retarded ($I.Q. < 70$) as compared to 20% of the neglected sample and only 3% of the normal controls. A chi square test established this difference to be significant at the .05 level. It is noteworthy that the sampling criterion for this study excluded those children known to have suffered severe head trauma which would have rendered many untestable. Needs tables

An article by Brandwein (1973) on the relationship between abuse and retardation implied that organic damage resulting from parentally inflicted head injuries may be the causal agent responsible for cognitive impairment observed in the battered child. In light of the criteria for sampling in the Downstate study which excluded those children known to have suffered head trauma of a serious nature, this explanation does not appear entirely plausible. It is probable that while some of the mentally defective children in our abused sample may have sustained cognitive damage directly as a result of maltreatment, the majority would have

demonstrated aberrant development in any case and perhaps prior to the onset of abuse.

A pre-existing deviancy on the part of the child, e.g., cognitive or neurological deficits, may cause him to be provocative and unmanageable. While such a child would predictably present difficulties even for normal parents under average stress, an actual physical or mental deficiency in conjuntion with the other factors may greatly increase the probability that abuse will occur. Pre-existing child deviancies might include:

1. Pathological traits that might constitute an additional stress for "average" nonabusive parents include extreme physical or psychological deviance of the child. Children with major physical defects and congenital anomalies, as well as psychotic, retarded, or brain-damaged youngsters, are tolerated poorly by narcissistic parents, who regard them as new editions of their own defective self-image. These children are also extremely burdensome and increase the task of childrearing.

Another group of children with pathological traits that might constitute additional stress are those who respond poorly to nurturance. These may be colicky, irritable, and hypertonic infants who are difficult to satisfy and comfort. The mothers perceive their unresponsiveness as a rejection reminiscent of experiences with their own parents and intensifying their sense of inadequacy (Ounsted, Oppenheimer & Lindsay, 1974).

Older children who display difficulties with impulse control also comprise part of this group. They manifest such behavior problems as lying, stealing, and assaultiveness and are often disruptive in school. They relate to significant objects in a provocative, sado-masochistic fashion. They clearly find some gratification in their ability to elicit punishment from the abusive parent.

2. Normal or "accidental" traits, which are misperceived by, or only attain special significance for, abuse-prone parents, include the child who is identified with a hated person or situation. For example, a mother will beat a child whose conception forced her into a premature and unhappy marriage. Another mother will abuse a child who resembles a despised ex-husband or boyfriend.

Also included in the group of children with misperceived normal traits is the child whose parent remarries and who is subsequently regarded by the stepparent as an unwelcome and burdensome stepchild. The stepchild is often treated as a sibling rival who threatens the stepparent's dependency on the mate. The stepchild also becomes a convenient target for the stepparent's hostility directed originally toward the spouse.

A young child who exhibits age-appropriate sexual or aggressive behavior that is considered to be abnormal is also included in this group of abused children. This behavior cannot be tolerated because it evokes the parent's own unacceptable impulses that are excluded from consciousness and ascribed to the child by means of denial and projection. Sexual acting out in older children will often elicit physical abuse from a parent who identifies with these unacceptable impulses.

The "abuse-prone" parent is one whose negative self image frequently forces him or her into unrealistically lofty expectations of the child which would be virtually impossible for even a normal youngster to fulfill. The mentally retarded or neurologically impaired child would reinforce the defective self-image of such a parent by the vast discrepancy between these demands and the youngster's level of functioning. The extremely high incidence of mental retardation found among the abused children in our study suggests that in many instances these children, by virtue of the challenge they present to parents of limited child rearing capacities, are likely candidates for abuse. While the frequent occurrence of mental retardation and impaired emotional functioning among abused

children has been demonstrated, it remains to be shown conclusively whether this pathology antedates abuse or is one of its effects.

Environmental Stress

While environmental stress has often been suggested as a prominent etiological factor in child abuse, the precise definition of this relationship has eluded most investigators. One author has attributed child abuse almost exclusively to socio-economic determinants (Gil, 1968, 1969) while most researchers agree that environmental stress serves as a catalyst, in some instances, for an abuse-prone personality. A single study (Justice & Justice, 1975) has shown a direct relationship between life changes as a measure of environmental stress and child maltreatment.

Economic pressures were important findings in studies by Elmer (1967), Kempe, et al (1962), Young (1964), and Johnson & Morse (1968), in addition to Gil. Contrary evidence can be obtained in Paulson and Blake (1969) and Steele and Pollock (1968) who have observed child abuse in economically advantaged populations. These authors and others (Adelson, 1961; Allen, Ten Bensel, & Ralle, 1969; Holter & Friedman, 1968; Kempe, et al, 1962; Simons, et al, 1966; Green, 1973; Green, et al, 1974) place far greater emphasis upon personality factors and intrafamily dynamics.

The stress argument has at least in part been predicated on the high percentage of low SES multiple problem familes in child abuse registers throughout the country. It is probable that reporting procedures themselves have led to the great emphasis on socioeconomic determinents, because of the disproportionate number of deprived persons being served by municipal agencies. Any controlled study which matches for SES is compelled to look beyond such variables

as family income for the origin of child abuse. The conclusion that Spinetta and Rigler (1972) reach in their review of the literature is far more likely--that environmental stress is neither necessary nor sufficient for child abuse but that it does, in some instances, interact with other factors, e.g., personality variables and child behaviors, to potentiate child battering.

Environmental stress includes current events that widen the discrepancy between the limited capacity of the parents and increased childrearing pressures. The stress may consist of a diminishing of childrearing resources, which might be due to a spouse's illness or desertion or to the unavailability of an earlier caretaker, such as a neighbor or some other family member.

Another environmental stress is the actual or threatened loss of a key relationship that provides the parent with emotional security and dependency gratification. This may occur when the spouse becomes physically or emotionally unavailable or when ties with parents or important relatives are severed due to estrangement, illness, or death. Additional childrearing pressures, such as the birth of another child, children becoming ill, or assuming the temporary care of other children occasioned by illness or death of friends or relatives, create environmental stress that might lead to child abuse.

When maltreatment is separated into its subcategories, abuse and neglect, the etiological role of the environment becomes more problematic. To propose that environmental stress and neglect are strongly associated is virtually tautological when exogenous factors such as unemployment define stress. It has been shown, however, that infra-familial stresses, like the loss of a spouse, may aggravate personality predispositions toward child abuse (Green, et al, 1974). The true valence of stress in the abuse process will only be known through rigorous multivariate studies that assess other potentiating factors, namely personality attributes of the parent and child, as well.

HYPOTHESES

1. A linear combination of variables reflecting a) personality characteristics of the parents b) stress and c) child vulnerability will differentiate abusing, neglecting and normal control mothers.

2. At least the largest discriminant function derived from these variables will be statistically significant.

3. At least one variable from each theoretical factor will be a major discriminating variable.

4. Abuse-prone personality variables will be more important discriminators than variables from either the stress or infant vulnerability factors.

5. There will be an interaction between group membership (Abuse/Neglect/Control) and either infant vulnerability or stress on abuse-proneness, i.e., abusers high on stress or infant vulnerability will have lower abuse-proneness then their low stress or infant vulnerability counterparts.

METHOD

Sampling: General Criteria

The final research sample was comprised of 80 mothers each from the Abuse, Neglect and Control populations. All mothers had at least one child between one and eleven years of age. For the Abuse and Neglect families, at least one maltreated child belonged in this age range. All of the families resided in Brooklyn either at the time of testing or between 1973 and 1976 when the maltreatment had been reporte

Specific Criteria: Abuse Sample

Criteria for abuse specified that it be physical abuse confirmed by BCW

investigation or court finding. Cases of sexual abuse exclusively or in which a finding of neglect had been made in addition to abuse were excluded from the sample. Cases engaged in ongoing court involvement prior to a disposition were also excluded or had contact delayed pending the completion of such litigation.

All accepted abuse cases were further screened with only those noting the mother as the definite perpetrator of abuse being included in the final sample. In every instance, the cases were obtained through scanning of Central Registry data and further reading of case studies at the Brooklyn BCW in order to confirm factual material and to include every case meeting our criteria in the final sample.

Neglect Sample

Criteria for neglect specified that it consist of failure of the parent to provide adequate physical care, i.e., food, clothing, medical care and/or supervision. All cases were obtained through initial scanning of the Central Registry followed by reading of BCW case material to screen for acceptability. Cases were included only after confirmation of neglect by BCW investigation or Family Court finding. Those neglect cases with any evidence of physical or sexual abuse were excluded from the final sample as were cases involved in current court proceedings. Only cases citing the mother as the party responsible were included in the sample. As many more neglect cases than our sample required were found to meet the criteria for inclusion in the study, a random sample was drawn from these cases and letters were sent only to those individuals.

Normal Control Sample

The normal control sample was selected at random from the records of the

past eleven years of the Department of Obstetrics and Gynecology at Kings County Hospital. Only those cases where the mother assumed responsibility for the child after birth were included, i.e., cases where children were placed or put up for adoption were excluded from the sample as were still births.

Procedures for Contacting Subjects

An agreement with the Bureau of Child Welfare was reached providing that potential study participants be contacted by mail with BCW involvement kept at a minimum. In addition, it was felt that families would be more likely to become engaged in the study if they were contacted directly by us without reference to their involvement with BCW. It was felt that the sensitive nature of the family's relationship with a protective service agency could yield less than candid responses to our questionnaires and ultimately jeopardize the validity of our instruments.

Prior to contacting subjects, the address noted either in the BCW record or in the Obs/Gyn record was checked on a public assistance scanner at BCW. This enabled the obtaining of the most recent listed address for most individuals. Virtually all prospective subjects appeared to be receiving public assistance. Following this procedure a letter (Appendix B) was sent out inviting the mother to contact us for an appointment at Downstate either by phone or via an enclosed stamped, self-addressed envelope and reply form. The BCW caseworker was automatically apprised that we were endeavoring to contact this person so that any inquiries could be channeled directly back to our staff. If no response was received after a week, a follow-up letter (Appendix B) was sent to any known addresses and phone contact was attempted through any known phone numbers. A second follow-up letter was sent in a number of cases

particularly where potential subjects had shown some interest in the project but had either missed appointments or not been reached by follow-up phone calls. Because of the differences in the sizes of the pools of potential appropriate subjects for the abuse, neglect and control groups, it was only necessary to send third letters to the abuse group. Sufficient cases were available in both the neglect and control populations to send out a larger number of initial letters enabling us to locate and see 80 subjects in each group without sending out third letters.

Once a potential subject had been contacted either by phone or by mail and had agreed to participate in the study, an appointment was made for the subject to be transported to our offices by taxi cab. It was explained at this time that each participant would be involved in a 2 to 3-hour session of answering paper and pencil questionnaires on one's ideas about bringing up children. All subjects were informed that they would be awarded a sum of $15 upon completion of the appointment to pay for any expenses incurred,e.g., baby sitting, lunch, etc., because of their time spent on the study. All subjects were also told that they would be transported home by taxi cab upon conclusion of their participation. The fare for transportation to and from Downstate was paid from study funds.

Table 1 indicates the numbers of cases where contact was attempted through initial and follow-up letters for the abuse, neglect and control cases and the results of these attempts. As can be seen, the rate of acceptance and inclusion in the study for all three groups was fairly low. The abuse group had the highest percentage of cases contacted and actually seen probably because of the more limited pool of cases available and the more intense effort made to include every acceptable case in the study.

In all groups the largest numbers of cases lost were due to returned letters

where we were unable to find a current address and to non-respondents. This percentage was highest among the controls due to the fact that the records used in obtaining these cases were the oldest and contained no follow-up material. Both abuse and neglect records were more recent and contained at least some worker follow-up.

Significantly, for those who received letters the percentages of negative reponses to our invitation to join the study were basically comparable across the three groups. The slightly higher percentage of negative responses in the abuse and neglect groups was predictable in light of their previous interaction with official-sounding bodies, e.g., City agencies.

Description of the Samples

Demographic information for each subject was obtained by two self-report instruments, the "Fact Sheet" from the Michigan Screening Profile of Parenting (Helfer, et al 1977) and Part 1 of the Schedule of Recent Experience (Holmes & Rahe, 1967). Both instruments are included in Appendix C . As shown in Tables 2 to 22 , the abuse, neglect and control samples were essentially comparable with respect to all important demographics. Tables 2 and 3 show means and standard deviations for age of mother and age of target child at time of testing. Tables 4 to 22 , respectively, break down each group by Race, Financial Status, Education, Number of Children, Age of Youngest Child, Age of Oldest Child, Marital Status, Religious Preference, Number of Marriages, Number of Divorces, Number of Times Lost Spouse to Death, Time at Present Residence, Times Moved in Past Five Years, Country of Birth, Number of Brothers, Number of Sisters, Birth Order in Family, Age when Mother Died and Age When Father Died. It should be noted that the small number of subjects in cells for selected variables did not permit a chi square test of significance, however, of those tests performed, only one was significant at the .05 level. Concerning "Religious Preference," (Table 11) there was a greater rela

frequency of Catholics in the abuse and neglect groups as compared to a higher percentage of Protestants among the controls.

In addition to the variables discussed above, the Two Factor Index of Social Cla (Hollingshead, 1957) was assigned on the basis of an interview by a social worker. As shown in Table 23, 93% of all subjects were classified as class 4 or 5, representing the lowest social strata. Consolidation of all demographic information defines the "typical" subject as follows: a mother, 26 to 27 years old, Black, Protestant or Catholic, annual income less than $4,000, between 10th and 12th grade education, social class 4 or 5, unmarried, with at least two children.

Procedure

The study was explained to all subjects as a survey of childrearing attitudes and life history events. Informed consents were obtained for both the study as a whole and for the Michigan Screening Profile of Parenting. Names did not appear on any answer sheets and anonymity was promised.

Four self-report questionnaires were administered to each mother in the following order: 1) Michigan Screening Profile of Parenting (MSPP) 2) Schedule of Recent Experiences (SRE) 3) Downstate Childrearing Questionnaire 4) Family Life Form (Appendix C).

Subjects were tested individually and monitored throughout. A Spanish translation for each questionnaire was available for those few subjects who required it and one French-speaking subject needed additional assistance. Spanish and English versions of the MSPP were recorded on tape for non-readers. The remaining questionnaires were read to any mothers who had difficulty following directions or comprehending specific items. The format of the SRE proved

difficult for many subjects and assistance was typically provided. The other three instruments were generally completed without intervention from the monitor.

The entire questionnaire battery required approximately 1-1/2 to 2 hours to complete. Subsequently each mother was interviewed by a social worker regarding the target child's birth and developmental history as well as to establish her social class index. At this time, a consent form to obtain birth information on the target child was signed by each mother. Mothers who expressed a wish for services for themselves or their families were referred to appropriate departments of the hospital or outside agencies.

Variables

Twelve variables were included in the overall multivariate analysis. The following chart shows each variable name, its relationship to factors theorized in this study and to its data source.

Variable	Source	Factor
1. Emotional Needs Met	MSPP	
2. Relationship with Parents		
3. Dealing with Others		
4. Expectations of Children		
5. Coping		Personality
6. MSPP Factor 1		
7. MSPP Factor 2		
8. MSPP Factor 3		
9. Abuse-Proneness	Downstate Child-Rearing Questionnaire	
10. Life Change Score	SRE	Stress
11. Family Life Score	Family Life Form	
12. Infant Risk	Mother's report	Infant Vulnerabil

Instruments

Michigan Screening Profile of Parenting

This 50-item questionnaire (formerly called the "Survey on Bringing Up Children) (Appendix C) was developed and tested over an 8-year period starting in 1967 by Ray E. Helfer, M.D., Carol Schneider, Ph.D., and James K. Hoffmeister, Ph.D. The questionnaire is designed to be answered on a 7-point agree-disagree scale with defined middle and end points (1 = strongly agree, 2 = moderately agree, etc.). The 50 items included in the MSPP were arrived at through a long process of interviewing and testing. Many possible items were originally developed from interviews with case history material, research literature on abusive parents. These items were further refined and limited in number through the application of the test to various criterion groups in order to ascertain the most stable and best differentiating set to be used in the final 50-item questionnaire (Helfer, et al, 1977). Using a series of cluster analyses on the test data gathered during this development period, Helfer, et al, have arrived at 5 clusters of items which are thought to differentiate individuals with parenting problems from those not manifesting such problems. It should be noted at this time that in addition to the specification of these 5 clusters during the test development, the authors of the MSPP have felt it necessary to redefine the nature of the population which this instrument is believed to be useful in identifying. Thus, instead of the rather specific initial goal of identifying parents at risk for maltreatment , Helfer, et al, now claim that the MSPP appears to identify parent-child interaction problems over a broad range of areas and is not limited to the identification of possible abusing or neglecting parents.

Currently the MSPP is scored to provide a profile of parents' scores on

the following 5 clusters of items:

1. Relationship with Parents (RWP)

   A 3-item cluster for which Helfer reports a general test-retest stability of scores across 71% of his sample of 92 mothers. That is, there were no changes in general score high, middle, low or inconsistent for 71% of these mothers over 2 testings.

2. Emotional Needs Met (ENM)

   An 8-item cluster with a general test-retest stability of 85%.

3. Dealing with Others (DWO)

   A 3-item cluster with a 62% test-retest stability.

4. Expectations of Children (EOC)

   A 3-item cluster with a 62% test-retest score.

5. Coping (COP)

   A 3-item cluster with a 64% test-retest stability.

Each cluster is scored according to a procedure called Convergence Analysis (Hoffmeister, 1975). This method allows for the classification of subjects as "at risk" or "no risk" depending on the pattern of their answers to the items within each cluster. An "at risk" designation is generally associated with either a consistently high score within a given cluster (convergence) or a high degree of inconsistency for responses within that cluster (nonconvergence).

Although the concurrent validation studies are not yet complete for all 5 clusters, Helfer reports the results of the ENM cluster when applied to 490 cases with known group membership as showing a sensitivity of 85.7% (ability to identify accurately mothers with known problems) and a specificity of 79.8% (ability to identify accurately parents with no apparent problems). However, when Helfer applied his questionnaire to a sample of 900 "walk-ins" of unknown group mem-

bership,over 60% were identified as "at risk" on this same ENM cluster. This finding, in combination with Helfer's statement that the other 4 clusters appear to identify a high percentage of false positives from known control groups, does not bode well for this instrument as a predictive measure.

A principal factors analysis was performed on the 240 MSPP records obtained in the current study. Following Harman (1967), the principal-factor solution employs communality estimates in the diagonals of the correlation matrix. Pairwise deletion of missing data was specified in order to obtain the largest possible sample.

An initial analysis in which fifty factors (those with positive eigenvalues) were extracted accounted for 38.4% of the total variance in all 50 questionnaire items. The first three factors contained 68% of this "common variance," and these were retained for varimax rotation. Beyond Factor 3, factors from the MSPP were difficult to interpret with typically two or fewer items whose loadings were greater than .3. This result, while somewhat disappointing from the standpoint of instrument development, is essentially consistent with the structure revealed in the previously cited cluster analysis. According to the manual for the MSPP, the five clusters on which convergence analysis is performed, are obtained from a total of twenty items from an original pool of fifty. Only the ENM cluster (8 items) contains more than three questions. It seems reasonable to infer that correlations between the remaining thirty items are quite low and that these questions reflect specific information.

The first three factors retained for rotation are shown in Table 24, Using the criteria of interpreting items with loadings = $\pm$ .35, Factor 1 appears to refer to relationship with parents and feelings about one's childhood. Factor 2 can be interpreted as self-concept and adequacy, while Factor 3 relates to per-

fectionistic expectations and denial of problems. These factors roughly correspond to MSPP clusters 1 and 2,3 and 5, and 4, respectively. Factor scores with the item's weighted mean substituted for no more than 25% missing data per subject were computed for each case and retained for entry into the multiple discriminant analysis.

Downstate Childrearing Questionnaire

The Downstate Childrearing Questionnaire (DCQ) (Appendix C) was developed to supplement the Helfer-Schneider Survey on Bringing Up Children (now MSPP). The rationale for this additional instrument was manifold and included the following:

1. The Survey on Bringing Up Children had evolved into a general screening instrument for aberrant parenting, and it was felt that a questionnaire specifically directed toward "abuse-proneness" was warranted.

2. Recent work with the MSPP appeared to be founded upon sampling from populations which were not comparable to those included in the current study.

3. The scoring system for the MSPP had seen numerous revisions and the most recent attempt (convergence analysis) no longer yields interval level data on all subjects.

The final version of the DCQ consists of forty-two items which were selected from an initial pool of sixty. The items reflect both a theoretical frame of reference and an empirical base from previous interview schedules. Clusters of items were written to suggest attitudes or experiences consistent with role reversal, identification with the aggressor, poor impulse control, projective defense mechanisms, isolating, splitting, and a history of childhood rejection and punishment. Items are declarative statements which are responded to on a six-point true-false scale with descriptors for both terminal and intermediate points, e.g., "moderately true," etc. The final 42 items were chosen on the basis of high or

moderate correlations with a total score. The total score is the sum of the forty-two items scored in the direction which would make all item-total correlations positive. Coefficient alpha, an estimate of reliability for the forty-two item test, was .80.

Schedule of Recent Experience

Many researchers have demonstrated a positive relationship between the occurrence of "stress" or "life crisis" or "life events" and the onset of physical illnesses and/or psychiatric symptomatology (Brown & Birley, 1968; Myers, Lindenthal and Pepper, 1971; Paykel & Uhlenhuth, 1972; Rahe & Holmes, 1964; Rahe, 1972). Perhaps the most widely used set of events or event lists in such studies is that compiled by Holmes & Rahe (1967) known as the Schedule of Recent Experience. This is a set of 42 life change events which have been weighted according to the amount of readjustment or adaptation that each requires. The weights for these events were determined by a series of standardization trials on a variety of samples. Subjects receive cumulative weighted scores which reflect the amount of life change occurring in their current life space. These scores are coded in "life change units."

The items on the Holmes-Rahe scale include an array of life situations covering such areas as marriage, family constellation, occupation, finance, residence, interpersonal relationship outside the family, education, recreation, religion and health. Every event included generates some type of change and necessary readjustment by the individuals involved. The events are typical everyday occurrences, including troubles with one's boss or difficulties with one's spouse. Some of the events are likely to be seen as desirable, while others may be undesirable. All, nonetheless, are seen as generating stress through the necessary life readjustment they require. A full list of the life change events included in the Schedule of

Recent Experience appears in Appendix C.

This instrument has been standardized on a wide range of populations including different racial and socioeconomic groups. The studies have demonstrated strikingly high agreement among such different populations in the ranking of life crisis events (Harmon, Masuda & Holmes, 1969; Komaroff, Masuda and Holmes, 1968; Masuda and Holmes, 1967).

The correlations of ratings made for each sample with the original study sample used by Holmes and Rahe have ranged from .74 to .94 demonstrating considerable stability subculturally in the United States and cross-culturally.

Casey, et al (1967) report test-retest reliabilities of .67, .64 and .74 for three 6-month recall periods on the scale.

This instrument has been shown to predict successfully a wide range of changes in physical health (Rahe, 1969), including the development of gastrointestinal, genital-urinary, musculo-skeletal and dermal disorders (Gunderson, Rahe, Arthur, 1970).

Justice & Justice (1975) have used the Social Readjustment Rating Scale (a variation of the SRE) in documenting stress in terms of the excessive numbers of life changes in child-abusing families.

Downstate Family Life Form

The Downstate Family Life Form (DFLF) (Appendix C) is an inventory of 32 life events which were felt to have relevance for the current study population and, additionally, were prevalent in life-histories of child abusers who participated in a treatment program at Downstate Medical Center. Each subject indicates the year or years, from 1970-1975, that a particular event occurred. The total score is the sum of events and years and ranges from zero to 160.

Unlike the SRE, events are unweighted and virtually all of the experiences queried by the inventory are negative, e.g., "getting arrested." Also in contrast to the SRE, this inventory is easy to administer and does not demand questionnaire sophistication of the subject.

Infant Vulnerability Index

The development of an index for rating infants at risk for future abuse presented a number of difficulties. We had previously ascertained that 30% of the abused children seen in our 1970-1972 study scored in the mental defective range on standard intelligence tests. In addition, clinical evidence supported our contention that many of the children who were selected as abuse targets were already "problem" children in their homes. Among the difficulties commonly cited with these children were hyperactivity, speech and language impairments, cognitive deficits and a wide range of social and emotional problems.

The issue of whether these deficits were antecedent or resultant conditions to abuse remains, however, unresolved. In an attempt to clarify the question, we proposed to ascertain an index of developmental risk at birth for children later found to be abused. Research in the area of neonatal risk for later developmental deficit has ranged over a broad array of factors. Since ours is a retrospective study, we were confronted with the necessity of using an index that could be applied to birth records obtained from various hospitals and other sources. As a result, a number of the more complex and possibly more reliable indices of neonatal risk (see references Hobel, et al, 1973; Smith, et al, 1972; Caputo, 1974; Parmelee, et al, 1975) could not be used as they were prospective or too detailed to be readily applicable to the records of different hospitals in the United States and possibly South America, Puerto Rico and other countries where

our sample population might have been born.

Lacking any basis for the comparison of such diverse hospital records, it was decided to use as an index of neonatal risk, the amount of time each infant spent in the hospital at birth. The expectation is that infants spending greater than normal amounts of time in the hospital at birth are those whose condition at birth or shortly thereafter is abnormal, pointing to possible risk for later developmental disabilities. Naturally, those children maintained in the hospital for reasons other than their own physical condition would be given a corrected "normal" index score.

In accord with this assumption, infants maintained in the hospital for a week or more because of their condition, e.g., prematurity, perinatal complications, etc., would be scored as "at risk" while those sent home prior to that time would be scored as "no risk."

A precedent for the use of "days in hospital" as a validating variable for scores of neonatal risk can be found in a study by Hobel, et al (1973), which reported a significant relationship between infant stay in hospital and prospective prenatal, intrapartum and neonatal risk data.

In addition to actual hospital records, an interview was developed and administered by the staff social worker to all participating parents. This enabled the obtaining of corroborating information regarding each target child's birth and subsequent development. At this time permission was also sought from each parent to send for the birth records of the target child. Subsequent mailings and requests for such information yielded an incomplete file of birth information as only 115 records were finally received. Much of the difficulty in obtaining these records appeared to stem from our inability to identify the records clearly enough. Thus, many mothers were unable to recall PA numbers or clinic card numbers which were used for the particular hospitalization in question and

a number of hospitals were unable to locate charts without such detailed information. After the information regarding hospital stay in the mother's statements was compared with 115 hospital records obtained and a phi coefficient of .86 was computed for this data, it was decided to use the mother's statements instead of the incomplete hospital records to arrive at the index of risk of vulnerability for each target child (Table 25).

Data Analysis

In the design employed in this study, there were twelve measures on each case with cases drawn from abusing, neglecting and normal control populations. A step-wise multiple discriminant analysis was performed on the original set of twelve variables to find those most useful in differentiating the three criterion groups.

The analytic solution requires the reduction of the multiple measures to weighted composite scores that maximally discriminate the abusers, neglecters and normal control families. When only two groups are to be discriminated, the correlations between p measures on each individual yield a single weighted composite score which allows for assignment of cases to either group and computation of the probability of misclassification. In a three population group design, a possible two discriminant functions may be required to maximally separate the groups in discriminant space. Alternatively, one discriminant function may suffice to discriminate the groups in question with the second function falling short of statistical significance. Multivariate test statistics related to the F distribution are available to determine whether one or more functions is significant as well as to assess comparisons between groups.

In addition, it is possible to interpret the multiple discriminant analysis

by comparing the relative contributions of each of the independent variables to each function. The importance of parental personality, child vulnerability and stress variables can then be assessed.

Finally, the discriminant analysis can be utilized to derive formulae which can be used to classify each case into an appropriate risk category. When classification of "known" cases proves highly successful, these formulae can be used to classify new cases on which the same measures are available.

In the current study, an optimal discriminating set was sought from the original set of twelve variables. The analysis proceeds by selecting an initial variable which by itself has the greatest amount of discriminating power. A second variable is then selected which in combination with the first variable yields the best criterion value, and so forth until additional variables fail to produce a significant increment.

RESULTS ? This is still methods

The Michigan Screening Profile of Parenting (MSPP), the Schedule of Recent Experience (SRE), the Downstate Childrearing Questionnaire (DCQ) and the Family Life Form (FLF) were administered to three defined groups comprised of abuse, neglect, and normal control mothers. In addition, an interview with each mother (Appendix C) established whether or not the child could be considered "high risk" on the basis of perinatal complications. In all, twelve measures on each subject were available including five cluster scores from the MSPP, three factor scores from the MSPP, the DCQ total abuse-proneness score, the total SRE score, the Family Life Form stress score, and the infant risk index (see chart; p. 20).

A step-wise multiple discriminant analysis was performed on these measures

for the three criterion groups. Six variables were entered one at a time after which additional variables failed to produce a significant increment. Listed in order of entry, these were FLF stress score, MSPP cluster 5 (coping), MSPP Factor 3 (perfectionistic expectations and denial of problems), SRE total, MSPP Factor 1 (relationship with parents and feelings about one's childhood) and MSPP cluter 1 (relationship with parents). A first and statistically significant discriminant function was derived (Λ = .8759, χ^2 = 30.934, df = 12, $p < .005$). The second function, retained for descriptive purposes, was not statistically significant (Λ = .9689, χ^2 = 7.369, df = 5, $p > .10$). Intermediate results as each of the six variables were entered into the analysis are shown in Table 26, as well as final eigenvalues and canonical correlations for each function.

The eigenvalues show the relative proportions of discriminatory power attributable to each function with the first function accounting for 76.81% and the second function accounting for 23.19%. Thus, the first and significant function is more than three times as important as the second. The canonical correlations which represent the relationship between the final set of variables and each discriminant function, were .310 and .176; while the squared canonical correlations 9.6% and 3.1% reflect the respective amounts of discriminant space explained. The variability in discriminant space attributable to group differences computed from the following formula (Tatsuoka, 1970):

$$\hat{\omega}^2_{\text{multi.}} = 1 - \frac{N}{(N-k)\ (1+\lambda_1)\ (1+\lambda_2) + 1}$$

equals approximately 12%.

Group centroids, which are the means of the two discriminant functions on the three criterion groups and standardized discriminant function coefficients are shown in Table 26. The centroids suggest that the neglecting mothers differ from abuse

which means what?

and normal control mothers on the first function, while on the second function, all three groups are approximately equally separated with the abuse and control groups farthest apart. This is illustrated in Figure 1.

Reference to the standardized discriminant function coefficients reveals that the first function is dominated by the FLF stress score which is almost twice as important as the next highest weight, MSPP Factor 1 (relationship with parents and feelings about one's childhood). It is important to note that the functions, interpretively analogous to factors, are bipolar and that the third highest weight, for MSPP Factor 3, is negative while FLF and MSPP 1 are positive. Thus, on the first discriminant function, neglecting mothers are set off from the abuse and control groups by high family stress, negative childhood experiences and relationships with parents, and low need for perfectionism and denial of problems.

The second and relatively trivial discriminant function's highest weight pertains to MSPP Cluster 5(coping), weighted negatively, while the next highest is positively weighted SRE total. The low centroid mean of the abuse group relative to the neglect and normal control groups in conjunction with these weights indicates their inability to cope adequately even in the absence of the life stresses that the SRE measures. These mothers also reported relatively positive childhood experiences and a low need for perfectionism or denial of problems.

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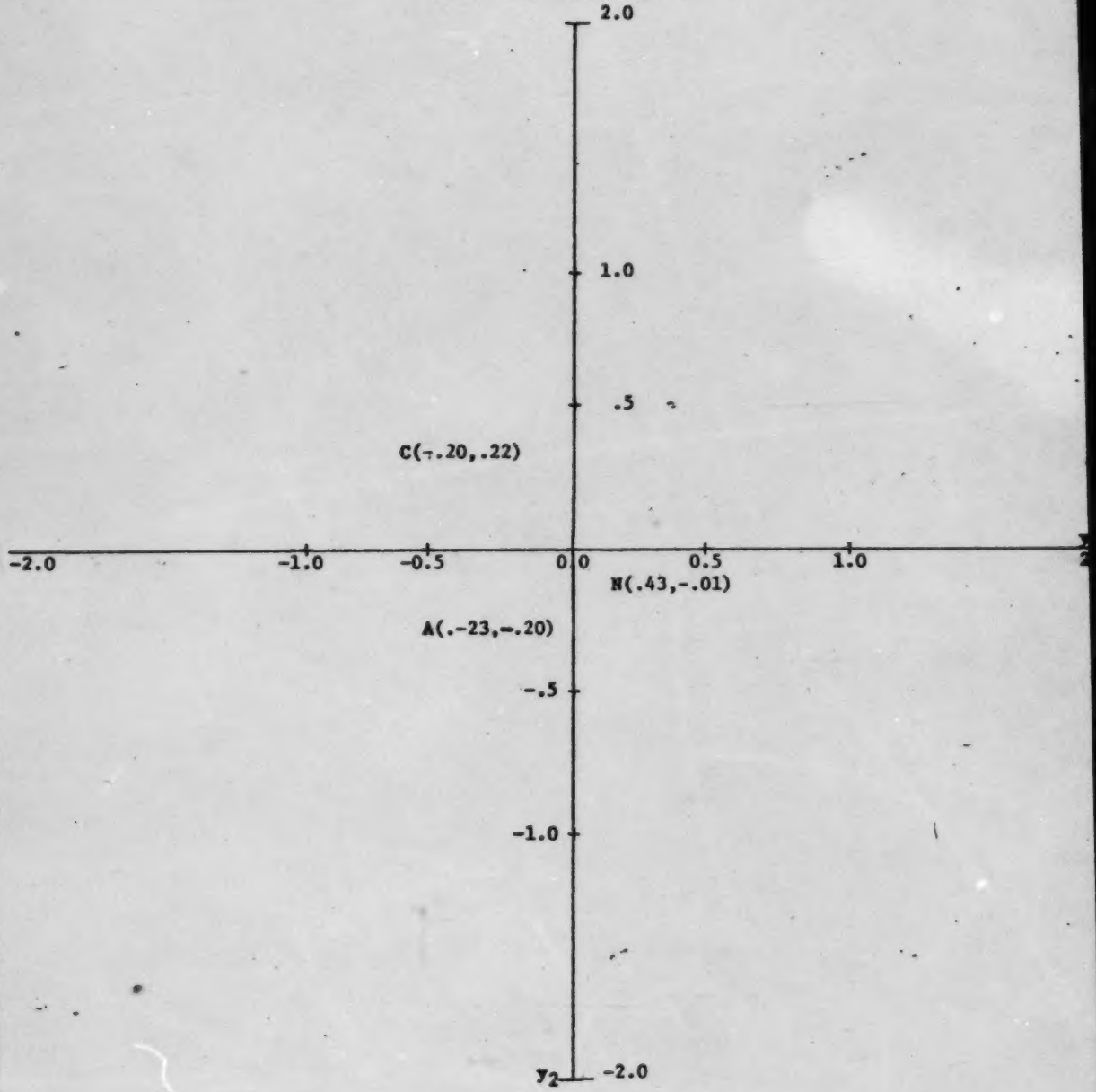
Therefore, examination of the discriminant analysis as a whole reveals two dimensions in which 1) with respect to family stress and childhood experiences, the

FIGURE 1. GROUP CENTROIDS FOR ABUSE, NEGLECT AND CONTROL GROUPS IN DISCRIMINANT FUNCTION SPACE



neglect group is clearly separated from abuse and control groups and 2) abusers differ most from controls on SRE stress and MSPP coping. Both general and family stress are important discriminating variables, while selected personality variables concerning childhood experiences and coping, account for additional variance. Infant risk, determined on the basis of neonatal hospitalization, was not a successful discriminator/predictor.

To assess the overall usefulness and success of the discriminant analysis, classification functions based on the optimal set of six variables were used to reclassify the two-hundred forty known cases. As shown in Table 27, the total percent of correctly reclassified cases was 48.75% or approximately 15% better than that obtainable by chance. While this result is relatively undramatic, it is noteworthy that only 27% of the combined maltreating mothers were misclassified as normal from closely matched samples.

Supplementary Results

Hypothesis 5 proposed a possible interaction between membership in the abused, neglect, or control groups and either stress or infant vulnerability on abuse-proneness. A disordinal interaction was anticipated, i.e., an abusing mother in the absence of a "high risk" infant and/or under low stress would be highly "abuse-prone;" while a low score on abuse-proneness for an abuser would require a high risk child and/or high stress. A three-way (maltreatment x infant risk x total SRE score) analysis of variance was performed on the DCQ abuse-proneness score. None of the interactions were significant at the .05 level; therefore, hypothesis 5 was not supported.

In addition to the variables which were incorporated into the multiple discriminant analysis, 11 nominal outcome variables believed to be of theoretical

importance were analysed by chi square tests. These data were obtained on the factual sections of the MSPP and SRE as well as in the interview. The following variables were tested for independence of membership in the abuse, neglect or normal control groups: marital status, having had a pet as a child, separation from mother before age 11, education attained, Hollingshead-Redlich Two Factor Index of Social Class, having had a premature baby, having had a Caesarean, having been told that their mother's pregnancy or delivery was difficult, history of serious illness, having a listed telephone number, and type of punishment as a child.

As shown in Tables 28 to 38, differences significant at the .05 level occurred on separation from mother before 11 years (28), having a listed phone number (29), and through combining cells, on HR class (30). To summarize these results, significantly more maltreating mothers were separated from their own mothers before 11 years old; a smaller proportion of maltreating mothers had phones; and a slightly, but significantly greater, proportion were in class 5 of the Hollingshead-Redlich index. However, it should be noted that when groups are compared above and below class 4 which typically is the poverty-level cutting point, there is no significant difference.

In addition to being entered into the discriminant analysis, the infant risk index was tested across the three groups by chi square. As shown in Table 39, the proportions of high risk target children do not differ significantly across the abuse, neglect, and control groups; however, as Table 3 indicates, the abused children were on average 21 months older than target children of the other two groups.

DISCUSSION

The purpose for this investigation of factors associated with child abuse and neglect was twofold: explanation and prediction. Because the data base consisted

primarily of self-report questionnaires and inventories completed after the onset of child maltreatment, the study is retrospective with reference to these events and causality can only be inferred with great circumspection. In this sense, the primary purpose was the more general one of explanation, while prediction is subsumed under both theory and explanation (see Kerlinger & Pedhazur, 1974, p.4-5). Specifically, the study attempted to empirically validate the prevailing multi-factor theory of child maltreatment which states that child abuse can be explained as a function of parental personality, child characteristics, and stress and implies that it can be predicted on this basis. Accordingly, if a, b, and c are present, d will occur. With this as a background, it is possible to interpret the results of the study as weakly supportive of the explanatory model but of dubious utility for prediction or screening of high risk mothers.

On the basis of six variables from the original set of twelve, the abuse, neglect and normal control mothers were discriminated at the .005 level of significance; however, only 12% of the discriminant space was accounted for. Of the six discriminating variables, the Family Life Form environmental stress measure was most successful followed by four scores from the MSPP and the total score on the Schedule of Recent Experience. Thus, stress and personality factors were associated with child maltreatment, while infant risk was not. It had been hypothesized that personality factors would be of more consequence than stress or infant risk; however, the results do not support this. On the contrary, stress accounts for most of the explained variance, and the significance of the first discriminant function is largely attributable to this factor. Moreover, it is on stress that the abuse and neglect mothers differ most from each other with the neglect group obtaining the higher scores. Although the abusing mothers were also expected to score high on the FLF and SRE, it is not altogether surprising

that the neglecting mothers exceeded them. Unemployment, illness, evictions and arrests are representative of the life events sampled by the Family Life Form, and these poverty-related experiences are particularly common in neglecting families. Clinical reports of neglecting parents have found them to suffer from social disorganization to a greater extent than even abusing parents (Green, 1976). At the same time, it should be noted that the level of stress as measured by the FLF and SRE is roughly the same in both the abusing and control groups. This was contrary to expectation. The finding has considerable import for working with neglecting parents and for abusing parents where there is concomitant neglect. The failure to find significantly higher mean stress levels in the abuse sample, however, casts doubt on the three-factor theory as it is currently formulated. Moreover, the interaction between stress and maltreatment category on abuse-proneness was not significant. Therefore, it can be concluded that stress, as measured by the two instruments in this study, is extremely relevant to the etiology of child neglect but of less importance to child abuse than previously thought.

Alternatively, the retrospective nature of this study may account, in part, for the failure to find a stronger relationship between stress and child abuse. It is conceivable that stressful life events accumulate and peak prior to the establishment of an abuse pattern and then dissipate as an outlet is found and aggression is displaced onto the child. This precipitating aspect of stressful life experiences in the critical pre-abuse period would be difficult to ascertain retrospectively, particularly when the onset of abuse is unknown. Among chronically disorganized neglecting families, however, stress may be an omnipresent phenomenon more easily detected by questionnaires.

It is likewise conceivable that more pronounced personality differences between the abusing, neglecting and control parents would have been obtained if the

questionnaires had beencompleted when the maltreatment was imminent or actually occurring. Furthermore, it seems probable that many parents who have been involved in investigations and court actions would suppress or deny feelings and attitudes associated with these experiences.

Additional confounding factors may be problems inherent in paper and pencil inventories which demand introspection and the ability to make fine discriminations. Many of the subjects in this study encountered difficulty with questionnaire formats and, as Helfer, et al (1976) have noted, tended toward extreme response sets. In subsequent studies using these or similar instruments, it would be useful to measure and control for intelligence and denial, as these represent potentially confounding moderator or suppressor variables.

Despite these problems with paper and pencil instruments, however, the results show the maltreating groups to demonstrate somewhat more negative childhood perceptions (neglectors, primarily) and an inability to cope (abusers). Stress, while relatively ubiquitous, is highest in the negelct group and the factor that distinguishes these mothers from abusers or controls.

Despite the significance of the first discriminant function and chi square tests for several nominal variables (e.g., separations from mother, having a telephone), strong confirmation was not found for any of the major hypotheses. While the abusing, neglecting, and normal control mothers were discriminated at a level of probability that would occur by chance fewer than five times out of a thousand, only twelve percent of the discriminant space was accounted for. Thus, it may be concluded that while the variables chosen on the basis of previous research and theory are, indeed, relevant to the maltreatment syndrome, they leave approximately 88% of the variance unexplained. This is both perplexing and troublesome from the standpoint of policy and programs directed toward early identification and treatment.

A recent article (Daniel, et al, 1976) has analysed the relative costs of predictive screening instruments on the basis of child abuse incidence, and the ratio of false positives and negatives to true positives and negatives that can be expected statistically under certain conditions. The ability of an instrument or battery of instruments to correctly discriminate positive and negative cases is usually referred to as its "sensitivity" and "specificity." These are generally expressed as percentages of "known" cases. When the incidence of a given phenomenon is very low, a large number of false positives, i.e., cases wrongly identified or misclassified as child abuse, is likely to occur, even with the best instruments. The proportion of errors is naturally greater with those less than ideal instruments which reflect the "state of the art" in child abuse research.

In actual prediction of classification of known cases, it is possible to improve specificity and sensitivity by sampling from populations that are radically different. This procedure is often employed in the very early stages of an instrument's development where the final objective is the definition of empirical differences between groups which are alike with the exception of the variable of interest. Hence, it makes no sense to utilize criterion groups which differ in so many respects that they can no longer be considered "known." This procedure can easily lead to entirely fallacious inferences about the phenomenon in question. For example, it is well established that most cases of <u>reported</u> child abuse occur in low SES families, and that very few cases are reported from private schools and pediatricians. It is likely that if known abusing mothers were compared with known non-abusing mothers of private school students, vast differences would be discernable on innumerable parameters. No doubt, excellent sensitivity and specificity percentages would be obtained with virtually any personality inventory; and on this basis, it might be assumed that the instrument in question

was a good discriminator of abusing and non-abusing parents. What has, in fact, occurred in this intentionally hyperbolic example, is the misattribution to personality differences what correctly belongs to SES-related variables. As might be expected, when the same instrument is applied to known non-abusers from backgrounds comparable to the known abusers, the number of false positives increases and the instrument is "no longer" a good discriminator. The argument that all "positives" on questionnaires are apt to have childrearing problems is circular and entirely untenable in the absence of corroborating behavioral evidence.

One alternative to the ultimately fruitless approach outlined above, is to measure potentially important variables such as SES and to attempt to "equate" the two groups by treating these factors as covariates, or as levels which can be built into the research design. While this reduces the likelihood that significance will be wrongly attributed to main effects, the groups are never really equal; and the ability of an instrument to discriminate would probably have little generalizability to an unknown or "walk-in" population.

Perhaps the most legitimate strategy, while not always possible, is to match subjects from various criterion groups on potentially relevant covariates while endeavoring to keep them radically different on the variable of primary interest. Not surprisingly, this procedure makes more severe demands on the screening instrument or battery. Instruments such as the MSPP, which have shown excellent sensitivity and specificity with highly different criterion groups which differ, perhaps, as well, on numerous other parameters fare poorly with matched samples (this study) or "walk-ins." Initial data reported by Helfer, et al (1977), on 900 "walk-in" unknowns yielded an alarming percentage of "high risk" mothers, actually approaching the percentage of correctly identified abusers in the current study.

Nevertheless, the degree of success claimed for the MSPP with known criterion groups has implications for research with matched samples. In the former case, it is generally possible to obtain dramatic differences on the criterion variable, in this instance, known abusers and "best moms" as selected by private pediatricians and schoolteachers. It is seldom feasible to obtain the necessary numbers of matched subjects who differ so radically on the one variable of interest.

In the current study, the abuse and neglect samples were compiled from a list of confirmed cases maintained by the Bureau of Child Welfare on whom addresses were current. From this sizable list, a smaller percentage of subjects responded to our invitation to participate, and still fewer actually came in. The control mothers were volunteers matched on relevant variables who had utilized an ob-gyn clinic at a municiple hospital. It is evident that sampling from BCW records of confirmed cases is contingent both on the agency definition of what constitutes maltreatment and the extent to which this definition is applied. The Gelles study ( ) has highlighted the diverse and, at times, arbitrary definitions of different "gatekeepers" or social agencies. In New York State, for example, the official definition of what constitutes maltreatment is itself very broad, and the application of this definition, dependent as it is on investigations by workers overwhelmed by large caseloads, is often capricious. "Plea-bargaining" is common.

From this one can assume that the eighty abusers and eighty neglectors obtained as they were in this study, represent a continuum of maltreatment severity, ranging from mild cases which probably overlap to some degree with subcultural norms to those very severe cases which would be classified as child maltreatment in most jurisdictions. Because actual participants were voluntary respondents,

it is likely that the sample is somewhat biased toward those less severe cases, the assumption being that more aberrant mothers would opt not to participate. Other severe cases were institutionalized, in jail, or had left the state to avoid prosecution. The ultimate consequence of such sampling is that while the control group represents the subculture from which it was randomly drawn, the matched maltreatment samples may not be at a substantially different extreme on this critical variable. Although it is a poor alternative to compare known abusers with "best moms," dramatic results will not be forthcoming if a "walk-in" group is compared with matched groups of anything except the most severe abusers and neglectors. This would, in part, explain the uniformly negative childhood perceptions of mothers in the current study as well as Helfer's "walk-ins" and the inability of what were formerly thought to be unassailable precursors of maltreatment to discriminate. For example, a history of primarily physical punishment cannot differentiate maltreating from normal parents within a subculture or subcultures in which corporal punishment appears to be a common denominator.

The discriminating power of the instrument battery in the current study may have been enhanced if 1) a homogeneous group of severe abusers had been obtained or, paradoxically, 2) the control group was drawn from a different milieu, i.e., matching was less successful.

This investigation has shown that the proposed three-factor theory of causal factors related to child abuse and neglect has limited applicability ex post facto in closely matched samples. Rather than abandon or drastically modify the theory as yet, it is suggested that large scale prospective studies would ultimately subject these formulations to adequate test and yield more compelling conclusions. Oneof the major weaknesses of the current investigation concerns the infant risk

variable. Due to problems in obtaining informative hospital records of the target child's birth and unreliable developmental histories obtained from mothers, it was necessary to employ the length of the newborn's hospitalization as the infant risk measure. While there is some evidence that this index is predictive of subsequent deviancy, such a gross marker variable may mask information specifically predictive of vulnerability to maltreatment. A prospective study conducted at a large hospital could record extensive and detailed pre- and perinatal histories in a consistent and uniform fashion.

In addition to improving on the infant risk measure, a prospective study would, in all probability, obtain more valid responses to personality inventories and stress indices in the critical pre-abuse period. It would be most desirable to administer these instruments over time in a repeated measures design beginning with the last trimester of pregnancy and readministering in the post-partum phase, then perhaps at one or two year intervals. The additive or interactive aspects of different factors in precipitating maltreatment may be a relatively evanescent or self-limiting phenomenon inaccessible to retrospective study while the coalescence of these influences on parenting may be readily apparent on a prospective and longitudinal basis.

While it is acknowledged that a large scale prospective study such as this would be relatively costly, the magnitude of the problem demands that the theory be finally put to test. The state of the art in child abuse research is predicated almost entirely on retrospective studies which have found some support for the personality, stress, infant deviancy model. The ability to predict maltreatment, however, is considerably less than what would be acceptable for prevention or early identification. Although a major prospective and longitudinal study would be a considerable undertaking, the implications of the results for policy and programs appear to warrant such an effort.

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APPENDIX A

LIST OF TABLES

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35	Did Anyone Ever Tell You When You Were Born Your Mother's Pregnancy or Delivery was Very Difficult?
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38	Population of Birthplace
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Table 1

RESULTS OF EFFORTS TO CONTACT PROSPECTIVE STUDY PARTICIPANTS

Status	Abuse	Neglect	Control
Participated in study	80(30%)	80(16%)	80(10%)
Answered "yes" and missed all appointments	33(12%)	32(6%)	51(7%)
Answered "no"	17(6%)	22(4%)	16(2%)
No response to letters	55(20%)	238(48%)	275(35%)
Letters returned (address unknown)	84(31%)	125(25%)	343(45%)
Disqualified	1(0%)	4(1%)	4(1%)
Total	270(99%)	501(100%)	769(100%)

OUTCOME OF ABUSE AND NEGLECT CASES SCANNED

	Abuse	Neglect	Total
Cases Accepted	270	565	835
Unfounded Father Perpetrator Miscellaneous [1]	622 193 154	735 14 89	
Cases Rejected	969	838	1807
Miscellaneous Rejections (combined categories) [2]			631
	Total Scanned		3273

[1] Includes cases failing to meet criteria, i.e., physical maltreatment, complicated cases, i.e., founded neglect with suspected abuse

[2] Cases under investigation or in court, unlocated cases, cases not accepted by BCW or closed prior to a "finding"

Table 2

AGE AT THE TIME OF TESTING OF ABUSE, NEGLECT, AND CONTROL PARTICIPANTS

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	17.56	8.78	0.229	0.797
Within Groups	237	9084.44	38.33		
Total	239	9102.00			

Group	Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum	95 Pct Conf Int for Mean
Abuse	80	27.19	5.70	0.64	17.00	43.00	25.92 to 28.46
Neglect	80	27.50	6.83	0.76	18.00	47.00	25.98 to 29.02
Control	80	27.85	6.00	0.67	16.00	44.00	26.52 to 29.18
Total	240	27.51	6.17	0.40	16.00	47.00	26.73 to 28.30
Fixed effects model			6.19	0.40			26.73 to 28.30
Random effects model			0.33	0.19			26.69 to 28.34

Table 3

AGE OF TARGET CHILD AT TIME OF MOTHER'S TESTING

	Mean (in months)	Standard Deviation	Standard Error
Abuse*(N=80)	75.21	35.49	3.97
Neglect (N=80)	54.30	25.95	2.90
Control (N=80)	54.99	32.36	3.62

*Abuse vs. Neglect $t_{159} = 7.98$, $p. < .01$

Abuse vs. Control $t_{159} = 7.34$, $p < .01$

Table 4

RACE

	Oriental	Caucasion	Black	Other	Total
Abuse	1 (1.3%)	18 (22.5%)	55 (68.8%)	6 (7.5%)	80 (100%)
Neglect	0 (0.0%)	20 (25.0%)	53 (66.3%)	7 (8.8%)	80 (100%)
Control	0 (0.0%)	7 (8.8%)	71 (88.8%)	2 (2.5%)	80 (100%)
Total	1 (0.4%)	45 (18.8%)	179 (74.6%)	15 (6.3%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Why not combine Oriental with Other?

Table 5

FINANCIAL SITUATION PER YEAR

	Under $4,000	$4-6,000	$6-10,000	$10-15,000	$15-20,000	Total
Abuse	53 (66.3%)	17 (21.3%)	8 (10.0%)	2 (2.5%)	0 (0.0%)	80 (100%)
Neglect	56 (70.0%)	9 (11.3%)	12 (15.0%)	1 (1.3%)	2 (2.5%)	80 (100%)
Control	43 (54.4%)	17 (21.5%)	13 (16.5%)	6 (7.6%)	0 (0.0%)	79 (99%)
Total	152 (63.6%)	43 (18.0%)	33 (13.8%)	9 (3.8%)	2 (0.8%)	239 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 6

EDUCATION - CHECK HIGHEST GRADE ACHIEVED Mean + SD

	Less than 8th	8th	10th	12th	College not completed	College completed	Total
Abuse	11 (13.8%)	11 (13.8%)	24 (30.0%)	22 (27.5%)	11 (13.8%)	1 (1.3%)	80 (100%)
Neglect	10 (12.5%)	11 (13.8%)	27 (33.8%)	25 (31.3%)	7 (8.8%)	0 (0.0%)	80 (100%)
Control	3 (3.8%)	4 (5.0%)	29 (36.3)	28 (35.0%)	15 (18.8%)	1 (1.3%)	80 (100%)
Total	24 (10.0%)	26 (10.8%)	80 (33.3%)	75 (31.3%)	33 (13.8%)	2 (0.8%)	240 (100%)

Chi square = 13.62332, p < 0.1909

Table 7

NUMBER OF CHILDREN OF ABUSE, NEGLECT AND CONTROL MOTHERS AT THE TIME OF TESTING

	1	2	3	4	5	6	7	8	9	Total
Abuse	14 (17.5%)	19 (23.8%)	24 (30.0%)	13 (16.3%)	6 (7.5%)	2 (2.5%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	80 (100%)
Neglect	13 (16.3%)	15 (18.8%)	17 (21.3%)	11 (13.8%)	8 (10.0%)	8 (10.0%)	5 (6.3%)	1 (1.3%)	2 (2.5%)	80 (100%)
Control	20 (25.0%)	30 (37.5%)	16 (20.0%)	7 (8.8%)	2 (2.5%)	2 (2.5%)	1 (1.3%)	0 (0.0%)	2 (2.5%)	80 (100%)
Total	47 (19.6%)	64 (26.7%)	57 (23.8%)	31 (12.9%)	16 (6.7%)	12 (5.0%)	6 (2.5%)	2 (0.8%)	5 (2.1%)	240 (100%)

Means?

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 8

AGE OF YOUNGEST CHILD — 50?

	< 2 mos.	2-12 mos.	13-30 mos.	31-47 mos.	4-6 years	6-8 years	9-12 years	Total
Abuse	1 (1.3%)	11 (13.8%)	21 (26.3%)	10 (12.5%)	17 (21.3%)	15 (18.8%)	5 (6.3%)	80 (100%)
Neglect	2 (2.5%)	11 (13.8%)	32 (40.0%)	17 (21.3%)	12 (15.0%)	6 (7.5%)	0 (0.0%)	80 (100%)
Control	4 (5.0%)	5 (6.3%)	27 (33.8%)	12 (15.0%)	18 (22.5%)	11 (13.8%)	3 (3.8%)	80 (100%)
Total	7 (2.9%)	27 (11.3%)	80 (33.3%)	39 (16.3%)	47 (19.6%)	32 (13.3%)	8 (3.3%)	240 (100%)

Table 9

AGE OF OLDEST CHILD As related to what?

	13-30 mos.	31-47 mos.	4-6 years	6-8 years	9-12 years	13-18 years	>18 years	Total
Abuse	6 (7.5%)	8 (10.0%)	13 (16.3%)	13 (16.3%)	24 (30.0%)	13 (16.3%)	3 (3.8%)	80 (100%)
Neglect	11 (13.8%)	6 (7.5%)	16 (20.0%)	10 (12.5%)	16 (20.0%)	12 (15.0%)	9 (11.3%)	80 (100%)
Control	13 (16.3%)	9 (11.3%)	15 (18.8%)	14 (17.5%)	15 (18.8%)	8 (10.0%)	6 (7.5%)	80 (100%)
Total	30 (12.5%)	23 (9.6%)	44 (18.3%)	37 (15.4%)	55 (22.9%)	33 (13.8%)	18 (7.5%)	240 (100%)

Chi square = 11.15684, $p < 0.5155$

Table 10

MARITAL STATUS

	Married	Divorced	Separated	Never Married	Widowed	Total
Abuse	17 (21.3%)	3 (3.8%)	24 (30.0%)	33 (41.3%)	3 (3.8%)	80 (100%)
Neglect	17 (21.3%)	8 (10.0%)	20 (25.0%)	33 (41.3%)	2 (2.5%)	80 (100%)
Control	20 (25.0%)	7 (8.8%)	12 (15.0%)	40 (50.0%)	1 (1.3%)	80 (100%)
Total	54 (22.5%)	18 (7.5%)	56 (23.3%)	106 (44.2%)	6 (2.5%)	240 (100%)

N.S.

Table 11

RELIGION

	Protestant	Catholic	Jewish	Other	None	Total
Abuse	25 (31.3%)	25 (31.3%)	3 (3.8%)	18 (22.5%)	9 (11.3%)	80 (100%)
Neglect	30 (37.5%)	29 (36.3%)	2 (2.5%)	14 (17.5)	5 (6.3%)	80 (100%)
Control	39 (48.8%)	14 (17.5%)	1 (1.3%)	24 (30.0%)	2 (2.5%)	80 (100%)
Total	94 (39.2%)	68 28.3%)	6 (2.5%)	56 (23.3%)	16 (6.7%)	240 (100%)

Chi square = 16.87556, p < 0.0314

Table 12

NUMBER OF MARRIAGES

	0	1	2	3	4+	Total
Abuse	33 (41.3%)	42 (52.5%)	4 (5.0%)	1 (1.3%)	0 (0.0%)	80 (100%)
Neglect	33 (41.3%)	40 (50.0%)	5 (6.3%)	0 (0.0%)	2 (2.5%)	80 (100%)
Control	42 (52.5%)	35 (43.8%)	3 (3.8%)	0 (0.0%)	0 (0.0%)	80 (100%)
Total	108 (45.0%)	117 (48.8%)	12 (5.0%)	1 (0.4%)	2 (0.8%)	240 (100%)

Table 13

NUMBER OF DIVORCES

	0	1	2	Total
Abuse	73 (91.3%)	7 (8.8%)	0 (0.0%)	80 (100%)
Neglect	67 (83.8%)	10 (12.5%)	3 (3.8%)	80 (100%)
Control	77 (96.3%)	2 (2.5%)	1 (1.3%)	80 (100%)
Total	217 (90.4%)	19 (7.9%)	4 (1.7%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 14

NUMBER OF TIMES LOST SPOUSE BY DEATH

	0	1	2	3	Total
Abuse	73 (91.3%)	7 (8.8%)	0 (0.0%)	0 (0.0%)	80 (100%)
Neglect	72 (90.0%)	6 (7.5%)	2 (2.5%)	0 (0.0%)	80 (100%)
Control	74 (92.5%)	5 (6.3%)	0 (0.0%)	1 (1.3%)	80 (100%)
Total	219 (91.3%)	18 (7.5%)	2 (0.8%)	1 (0.4%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 15

TIME AT PRESENT RESIDENCE

	1 Year	2 Years	5 Years	10 Years	10+ Years	Total
Abuse	33 (41.3%)	24 (30.0%)	14 (17.5%)	6 (7.5%)	3 (3.8%)	80 (100%)
Neglect	48 (60.0%)	20 (25.0%)	8 (10.0%)	1 (1.3%)	3 (3.8%)	80 (100%)
Control	23 (28.8%)	27 (33.8%)	18 (22.5%)	6 (7.5%)	6 (7.5%)	80 (100%)
Total	104 (43.3%)	71 (29.6%)	40 (16.7%)	13 (5.4%)	12 (5.0%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 16

TIMES MOVED IN LAST FIVE YEARS

	0	1	2	3	4	5	6	Total
Abuse	18 (22.5%)	21 (26.3%)	13 (16.3%)	17 (21.3%)	8 (10.0%)	2 (2.5%)	1 (1.3%)	80 (100%)
Neglect	11 (13.8%)	20 (25.0%)	24 (30.0%)	12 (15.0%)	7 (8.8%)	5 (6.3%)	1 (1.3%)	80 (100%)
Control	27 (33.8%)	29 (36.3%)	15 (18.8%)	3 (3.8%)	4 (5.0%)	2 (2.5%)	0 (0.0%)	80 (100%)
Total	56 (23.3%)	70 (29.2%)	52 (21.7%)	32 (13.3%)	19 (7.9%)	9 (3.8%)	2 (0.8%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

US vs Other

Table 17

COUNTRY OF BIRTH

	U.S.A.	Asia	Canada	South America	Total
Abuse	71 (88.8%)	0 (0.0%)	1 (1.3%)	8 (10.0%)	80 (100%)
Neglect	76 (95.0%)	1 (1.3%)	0 (0.0%)	3 (3.8%)	80 (100%)
Control	64 (80.0%)	0 (0.0%)	4 (5.0%)	12 (15.0%)	80 (100%)
Total	211 (87.9%)	1 (0.4%)	5 (2.1%)	23 (9.6%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 18

NUMBER OF BROTHERS

	0	1	2	3	4+	Total
Abuse	10 (12.5%)	12 (15.0%)	19 (23.8%)	19 (23.8%)	20 (25.0%)	80 (100%)
Neglect	17 (21.3%)	14 (17.5%)	12 (15.0%)	11 (13.8%)	26 (32.5%)	80 (100%)
Control	11 (13.8%)	16 (20.0%)	20 (25.0%)	10 (12.5%)	23 (28.8%)	80 (100%)
Total	38 (15.8%)	42 (17.5%)	51 (21.3%)	40 (16.7%)	69 (28.8%)	240 (100%)

Any diff in means

Chi square = 9.50248, p < 0.3017

Table 19

NUMBER OF SISTERS

	0	1	2	3	4+	Total
Abuse	16 (20.0%)	12 (15.0%)	13 (16.3%)	13 (16.3%)	26 (32.5%)	80 (100%)
Neglect	16 (20.0%)	22 (27.5%)	7 (8.8%)	13 (16.3%)	22 (27.5%)	80 (100%)
Control	13 (16.3%)	9 (11.3%)	19 (23.8%)	15 (18.8%)	24 (30.0%)	80 (100%)
Total	45 (18.8%)	43 (17.9%)	39 (16.3%)	41 (17.1%)	72 (30.0%)	240 (100%)

Chi square = 12.93203, $p < 0.1142$

Table 20

YOUR BIRTH ORDER IN FAMILY

	Oldest	Youngest	Middle	Only child	Total
Abuse	27 (33.8%)	13 (16.3%)	35 (43.8%)	5 (6.3%)	80 (100%)
Neglect	17 (2.3%)	15 (18.8%)	43 (53.8%)	5 (6.3%)	80 (100%)
Control	24 (30.0%)	9 (11.3%)	42 (52.5%)	5 (6.3%)	80 (100%)
Total	68 (28.3%)	37 (15.4%)	120 (50.0%)	15 (6.3%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 21

YOUR AGE WHEN MOTHER DIED

	Mother living	0-5 years	6-10 years	11-15 years	16-20 years	20+ years	Total
Abuse	63 (78.8%)	2 (2.5%)	3 (3.8%)	1 (1.3%)	3 (3.8%)	8 (10.0%)	80 (100%)
Neglect	64 (80.0%)	1 (1.3%)	3 (3.8%)	0 (0.0%)	1 (1.3%)	11 (13.8%)	80 (100%)
Control	69 (86.3%)	2 (2.5%)	1 (1.3%)	1 (1.3%)	1 (1.3%)	6 (7.5%)	80 (100%)
Total	196 (81.7%)	5 (2.1%)	7 (2.9%)	2 (0.8%)	5 (2.1%)	25 (10.4%)	240 (100%)

Expected frequency < 5 in > 20% of cells; chi square cannot be applied.

Table 22

YOUR AGE WHEN FATHER DIED

	Father living	0-5 years	6-10 years	11-15 years	16-20 years	20+ years	Total
Abuse	54 (67.5%)	5 (6.3%)	2 (2.5%)	3 (3.8%)	6 (7.5%)	10 (12.5%)	80 (100%)
Neglect	50 (62.5%)	5 (6.3%)	4 (5.0%)	3 (3.8%)	9 (11.3%)	9 (11.3%)	80 (100%)
Control	53 (66.3%)	5 (6.3%)	2 (1.3%)	1 (1.3%)	1 (1.3%)	18 (22.5%)	80 (100%)
Total	157 (65.4%)	15 (6.3%)	8 (3.3%)	7 (2.9%)	16 (6.7%)	37 (15.4%)	240 (100%)

Table 23

HOLLINGSHEAD-REDLICH TWO FACTOR INDEX OF SOCIAL CLASS

	1	2	3	4	5	Total
Abuse	0 (0.0%)	0 (0.0%)	4 (5.0%)	14 (17.5%)	62 (77.5%)	80 (100%)
Neglect	0 (0.0%)	1 (1.3%)	2 (2.5%)	10 (12.5%)	67 (83.8%)	80 (100%)
Control	0 (0.0%)	0 (0.0%)	9 (11.3%)	22 (27.5%)	49 (61.3%)	80 (100%)
Total	0 (0.0%)	1 (0.4%)	15 (6.3%)	46 (19.2%)	178 (74.2%)	240 (100%)

Expected frequency $\langle$ 5 in $\rangle$ 20% of cells; chi square cannot be applied.

Table 24

VARIMAX ROTATED FACTOR MATRIX FOR MICHIGAN SCREENING PROFILE OF PARENTING SHOWING LOADINGS $\geq \pm .35$

Item	Factor 1	Factor 2	Factor 3	Communality
1				0.19
2	-0.55			0.35
3				0.06
4				0.01
5				0.07
6	-0.36			0.13
7			0.53	0.29
8	-0.67			0.51
9				0.15
10		0.38		0.21
11		0.37		0.14
12				0.08
13				0.23
14	-0.41			0.23
15				0.11
16	-0.55			0.43
17				0.10
18				0.13
19		0.47		0.28
20			0.40	0.18
21	-0.70			0.51
22				0.18
23				0.10
24			0.38	0.19
25				0.10
26	0.40	0.43		0.34
27		0.51		0.27
28	0.43			0.30
29				0.10
30	0.52			0.33
31	0.43			0.27
32				0.12
33			0.39	0.21
34	0.58			0.37
35			0.56	0.32
36	0.40			0.21
37			0.39	0.23
38				0.03
39		0.42		0.26
40			0.38	0.19
41			0.37	0.15
42		0.40		0.19
43		0.46		0.34
44				0.13
45	-0.72			0.57
46				0.16
47	0.55			0.44
48				0.09
49		0.43		0.21
50			0.40	0.20
Eigenvalue	5.902	3.586	1.526	
Relative % Variance	53.6%	32.6%	13.9%	

Table 25

CORRELATION OF MOTHER'S REPORT AND HOSPITAL BIRTH RECORD

MOTHER'S REPORT	HOSPITAL RECORDS: Hospitalized > 7 days	HOSPITAL RECORDS: Hospitalized < 7 days
Hospitalized < 7 days	2	75
Hospitalized > 7 days	33	5

Phi coefficient = .86

Table 26

DISCRIMINANT ANALYSIS:
MEANS, STANDARD DEVIATIONS AND UNIVARIATE F RATIOS
FOR VARIABLES ENTERED INTO STEP-WISE MULTIPLE DISCRIMINANT ANALYSIS

Group	Abuse (N=80)	Neglect (N=79)[1]	Control (N=80)	
Means (standard deviations)				F
Family Life Score	10.64(5.87)	14.78(9.69)	11.66(6.26)	6.65**
SRE Total	820.30(643.66)	1131.44(1117.40)	968.79(799.00)	2.52
MSPP Factor 1	-0.07(0.97)	-0.03(0.91)	0.11(0.92)	0.80
MSPP Factor 2	0.00(1.00)	-0.13(0.89)	0.12(0.76)	1.58
MSPP Factor 3	-0.01(0.87)	-0.07(0.92)	0.08(0.83)	0.60
MSPP ENM	0.43(0.91)	0.62(0.79)	0.28(0.97)	2.99
MSPP RWP	-0.38(0.93)	-0.39(0.93)	-0.48(0.89)	0.27
MSPP DWO	-0.75(0.67)	-0.77(0.64)	-0.70(0.72)	0.24
MSPP EOC	0.0 (1.01)	0.04(1.01)	0.05(1.01)	0.05
MSPP Coping	-0.38(0.93)	-0.27(0.97)	-0.63(0.79)	3.34*
Infant Risk	-0.60(0.81)	-0.44(0.90)	-0.43(0.91)	0.97
Abuse-Proneness (DCQ)	129.69(26.32)	130.06(26.97)	122.08(20.78)	2.63

* $p. < .05$, two-tailed

** $p. < .01$, two-tailed

1 Missing data on one subject

Table 26, con't.

DISCRIMINANT ANALYSIS:
STEP-WISE MULTIPLE DISCRIMINANT ANALYSIS OF ABUSE, NEGLECT, CONTROL MOTHERS

Step Number	Variable	F to enter or remove	Wilks' Lambda	Sig.	RAO's V	Change in RAO's V	Sig. of Change
1	Family Life Score	6.65	0.95	0.002	13.30	13.30	0.001
2	MSPP Coping	2.91	0.92	0.001	19.22	5.92	0.052
3	MSPP Factor 3	2.39	0.91	0.001	24.32	5.11	0.078
4	SRE Total	1.24	0.90	0.001	26.93	2.61	0.271
5	MSPP Factor 1	1.27	0.89	0.002	29.67	2.74	0.255
6	MSPP ENM	1.33	0.88	0.002	32.63	2.96	0.228

Additional variables fail to exceed entry criteria

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Derived	Wilks' Lambda	Chi Square	DF	Significance
				0	0.88	30.934	12	0.002
1	0.11	76.81	0.310	1	0.97	7.369	5	0.195
2	0.03	23.19	0.176					

Standardized Discriminant Function Coefficients

	Function 1	Function 2
Family Life Score	0.80	0.29
SRE Total	0.22	0.46
MSPP Factor 1	0.41	0.37
MSPP Factor 3	-0.39	0.27
MSPP ENM	0.38	-0.15
MSPP Coping	0.31	-0.69

Unstandardized Discriminant Function Coefficients

	Function 1	Function 2
Family Life Score	0.10	0.04
SRE Total	0.00	0.00
MSPP Factor 1	0.44	0.39
MSPP Factor 3	0.45	0.31
MSPP ENM	0.42	-0.17
MSPP Coping	0.34	-0.76
Constant	-1.57	-1.22

Centroids of Groups in Reduced Space

	Function 1	Function 2
Abuse	-0.23	-0.21
Neglect	0.44	-0.01
Control	-0.20	0.22

Table 27

ACTUAL AND PREDICTED GROUP MEMBERSHIP OF ABUSE, NEGLECT, AND NORMAL CONTROL MOTHERS FROM DISCRIMINANT ANALYSIS

Actual Group	No. of Cases	Predicted Abuse	Predicted Neglect	Predicted Control
Abuse	80	36 (45.0%)	21 (26.3%)	23 (28.8%)
Neglect	80	20 (25.0%)	39 (48.8%)	21 (26.3%)
Control	80	19 (23.8%)	19 (23.8%)	42 (52.5%)

Percent of "grouped" cases correctly classified: 48.75%

Table 28

WERE YOU SEPARATED FROM YOUR MOTHER BEFORE THE AGE OF 11 YEARS?

	Yes	No	Total
Abuse	25 (31.6%)	54 (68.4%)	79 (99%)
Neglect	30 (38.0%)	49 (62.0%)	79 (99%)
Control	14 (17.5%)	66 (82.5%)	80 (100%)
Total	69 (29.0%)	169 (71.0%)	238 (99%)

Chi square = 8.49877, $p < 0.0143$

Opposite to previous remarks

Table 29

IS YOUR TELEPHONE NUMBER LISTED IN THE TELEPHONE DIRECTORY?

	Yes	No	I don't have a phone	Total
Abuse	17 (21.3%)	36 (45.0%)	27 (33.8%)	80 (100%)
Neglect	13 (16.3%)	34 (42.5%)	33 (41.3%)	80 (100%)
Control	25 (31.3%)	41 (51.3%)	14 (17.5%)	80 (100%)
Total	55 (22.9%)	111 (46.3%)	74 (30.8%)	240 (100%)

Chi square = 12.42408, $p < 0.0145$

Table 30

HOLLINGSHEAD-REDLICH TWO FACTOR INDEX OF SOCIAL CLASS
WITH CLASSES 2 AND 3 COMBINED

	2 + 3	4	5	Total
Abuse	4 (5.0%)	14 (17.5%)	62 (77.5%)	80 (100%)
Neglect	3 (3.8%)	10 (12.5%)	67 (83.8%)	80 (100%)
Control	9 (11.3%)	22 (27.5%)	49 (61.3%)	80 (100%)
Total	16 (6.7%)	46 (19.2%)	178 (74.2%)	240 (100%)

Chi square = 11.66, 4 df, $p. < .01$

Table 31

WHEN YOU WERE A CHILD DID YOU HAVE A PET?

	Yes	No	Total
Abuse	48 (60.0%)	32 (40.0%)	80 (100%)
Neglect	48 (60.0%)	32 (40.0%)	80 (100%)
Control	41 (51.3%)	39 (48.8%)	80 (100%)
Total	137 (57.1%)	103 (42.9%)	240 (100%)

Chi square = 1.66678, $p < 0.4346$

Table 32

WHEN YOU "GOT OUT OF HAND" AS A CHILD, HOW WERE YOU PUNISHED?

	None	Physical punishment	Non physical punishment	Total
Abuse	3 (3.8%)	45 (56.3%)	32 (40.0%)	80 (100%)
Neglect	8 (10.0%)	52 (65.0%)	20 (25.0%)	80 (100%)
Control	6 (7.5%)	53 (66.3%)	21 (26.3%)	80 (100%)
Total	17 (7.1%)	150 (62.5%)	73 (30.4%)	240 (100%)

Chi square = 6.63913, $p < 0.1562$

Table 33

HAVE YOU EVER HAD A PREMATURE BABY?

	Yes	No	Total
Abuse	28 (35.0%)	52 (65.0%)	80 (100%)
Neglect	28 (35.0%)	52 (65.0%)	80 (100%)
Control	21 (26.3%)	59 (73.8%)	80 (100%)
Total	77 (32.1%)	163 (67.9%)	240 (100%)

Chi square = 1.87395, $p <$ 0.3918

Table 34

HAVE YOU EVER HAD A CAESAREAN SECTION?

	Yes	No	Total
Abuse	12 (15.0%)	68 (85.0%)	80 (100%)
Neglect	15 (18.8%)	65 (81.3%)	80 (100%)
Control	16 (20.0%)	64 (80.0%)	80 (100%)
Total	43 (17.9%)	197 (82.1%)	240 (100%)

Chi square = 0.73663, $p <$ 0.6919

Table 35

DID ANYONE EVER TELL YOU WHEN YOU WERE BORN YOUR MOTHER'S PREGNANCY OR DELIVERY WAS VERY DIFFICULT?

	Yes	No	Total
Abuse	15 (18.8%)	65 (81.3%)	80 (100%)
Neglect	12 (15.0%)	68 (85.0%)	80 (100%)
Control	13 (16.3%)	67 (83.8%)	80 (100%)
Total	40 (16.7%)	200 (83.3%)	240 (100%)

Chi square = 0.42000, $p <$ 0.8106

Table 36

HAVE YOU EVER BEEN SERIOUSLY ILL?

	Yes	No	Total
Abuse	28 (35.0%)	52 (65.0%)	80 (100%)
Neglect	29 (36.7%)	50 (63.3%)	79 (99%)
Control	23 (28.8%)	57 (71.3%)	80 (100%)
Total	80 (33.5%)	159 (66.5%)	239 (100%)

Chi square = 1.25660, $p < 0.5335$

Table 37

MOST OF LIFE SPENT IN

	Rural area	5000-	5000+	50,000+	500,000+	Total
Abuse	11 (13.8%)	4 (5.0%)	3 (3.8%)	8 (10.0%)	54 (67.5%)	80 (100%)
Neglect	12 (15.0%)	3 (3.8%)	7 (8.8%)	2 (2.5%)	56 (70.0%)	80 (100%)
Control	9 (11.3%)	4 (5.0%)	13 (16.3%)	8 (10.0%)	46 (57.5)	80 (100%)
Total	32 (13.3%)	11 (4.6%)	23 (9.6%)	18 (7.5%)	156 (65.0%)	240 (100%)

Chi square = 12.30493, $p < 0.1381$

Table 38

POPULATION OF BIRTHPLACE

	Rural	5000-	5000+	50,000+	500,000+	Total
Abuse	17 (21.3%)	5 (6.3%)	7 (8.8%)	11 (13.8%)	40 (50.0%)	80 (100%)
Neglect	14 (17.5%)	6 (7.5%)	9 (11.3%)	12 (15.0%)	39 (48.8%)	80 (100%)
Control	14 (17.5%)	6 (7.5%)	15 (18.8%)	8 (10.0%)	37 (46.3%)	80 (100%)
Total	45 (18.8%)	17 (7.1%)	31 (12.9%)	31 (12.9%)	116 (48.3%)	240 (100%)

Chi square = 4.83188, $p < 0.7754$

Table 39

CHILDREN DESIGNATED "AT RISK" OR "NO RISK" ON THE BASIS OF POST-NATAL HOSPITALIZATION

	No Risk	Risk	Total
Abuse	64 (80.0%)	16 (20.0%)	80 (100%)
Neglect	58 (72.5%)	22 (27.5%)	80 (100%)
Control	57 (71.3%)	23 (28.8%)	80 (100%)
Total	179 (74.6%)	61 (25.4%)	240 (100%)

Chi square = 1.8902, 2 df, $p. < 0.3886$

APPENDIX B

STATE UNIVERSITY
OF NEW YORK

DOWNSTATE MEDICAL CENTER

• BROOKLYN FAMILY STUDY

Dear Ms.

Your name has been chosen from Brooklyn families where there was a child born in the last ten years. We would like to invite you to complete a set of questionnaires at Downstate Medical Center for a study of peoples' ideas about bringing up children. We will provide you with transportation to and from the medical center and will pay you $15.00 for taking part in our survey. Your participation will involve three hours of your time and an appointment can be arranged at your convenience. Your answers on our questionnaires will be kept completely confidential.

If you have any questions about the study or would like to set up an appointment immediately, please call Naomi Fein, Brooklyn Family Study, 630-4941 between the hours of 9:30 AM and 4:30 PM, Monday through Friday. If you would prefer to let us know by mail, please use the enclosed form and return it to us in the stamped envelope.

Because only a limited number of mothers can be part of this study, we hope to hear from you as soon as possible so that you might be included.

Thank you.

Sincerely yours,

Naomi Fein
Administrative Assistant

Enc.

P.S. Although our mailing address is 450 Clarkson Avenue, our offices are located at Pavilion II, Room 208.

MAILING ADDRESS: 450 CLARKSON AVENUE, BROOKLYN, NEW YORK 11203 / PHONE: (212) 630-4941

STATE UNIVERSITY
OF NEW YORK

DOWNSTATE MEDICAL CENTER

• BROOKLYN FAMILY STUDY

Ms. Naomi Fein
Brooklyn Family Study
Downstate Medical Center
Box 32, Pavilion II, Rm. 208
450 Clarkson Avenue
Brooklyn, New York 11203

Dear Ms. Fein:

☐ Yes, I am interested in taking part in the Brooklyn Family Study. Please contact me for an appointment.

☐ No, I am not interested in taking part in the Brooklyn Family Study.

NAME: _____

ADDRESS: _____

_____

HOME PHONE OR PHONE WHERE YOU CAN BE REACHED: _____

STATE UNIVERSITY
OF NEW YORK

DOWNSTATE MEDICAL CENTER

• BROOKLYN FAMILY STUDY

Dear Ms.

Not long ago, we wrote you a letter inviting you to participate in a study of Brooklyn families at Downstate Medical Center. Since we have not yet received your reply, we are writing to you once again to make an appointment at your convenience.

In case our first letter did not reach you, you have been selected from Brooklyn families where a child was born between 1966 and 1975. We would like you to complete a set of questionnaires for a study of peoples' ideas about bringing up children. We will provide you with transportation to and from the medical center and will pay you $15.00 for taking part in our survey. Your participation will involve about three hours of your time. Your answers to our questionnaires will be kept completely confidential.

Please check the enclosed form showing whether or not you are interested and return it to us in the stamped envelope or call us between 9:30 AM and 4:30 PM, Monday through Friday, at 630-4941.

Because only a limited number of mothers can be part of this study, we hope to hear from you as soon as possible so that you might be included.

Thank you.

Sincerely,

Naomi Fein
Administrative Ass't.

/nf
Enc.

MAILING ADDRESS: 450 CLARKSON AVENUE, BROOKLYN, NEW YORK 11203 / PHONE: (212) 630-4941